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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,660	03/01/2002	Michael John Towler	YAMAP0804US	7895

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EXAMINER	
DUONG, THOI V	
ART UNIT	**PAPER NUMBER**
2871	

DATE MAILED: 05/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/087,660	Applicant(s) TOWLER ET AL.	
	Examiner Thoi V Duong	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 March 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *5* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claims 21-23 contains the trademark/trade name RM257, RM308 and CB15. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe the reactive mesogen layer and, accordingly, the identification/description is indefinite.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 5-10, 15-17, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Acosta et al. (EP 0996028A2).

As shown in Fig. 1, Acosta et al. discloses a liquid crystal device comprising a nematic liquid crystal 3, voltage means for applying a voltage across said liquid crystal,

and two substrates 1, 1' each provided with an alignment layer 2, 2' (col. 1, paragraphs 1-5), wherein, as illustrated in Fig. 9, a modification of Fig. 7:

said liquid crystal is sandwiched between said two substrates; said nematic liquid crystal can be placed in at least one operating state and at least one non-operating state (cols. 1 and 2, paragraphs 8 and 9); and

at least one of said alignment layers is provided with a plurality of surface protrusions 8, 8' formed from a polymerisable reactive mesogen as an anisotropic material as shown in Fig. 9 (cols. 13 and 14, paragraphs 81 and 82),

wherein at least some of said protrusions nucleate said liquid crystal into said operating state from said non-operating state when said voltage exceeds a threshold value and said operating and non-operating states are topologically distinct from each other (cols. 1 and 2, paragraph 8 and 9; col. 4, paragraph 22; and col. 12, paragraph 73);

wherein at least some of said protrusions isolate said operating state from said non-operating state or from another operating state (col. 12, paragraph 73);

wherein said liquid crystal is divided into a plurality of pixels each having an active region, and wherein the active region of each said pixel contains, or overlaps with, or lies adjacent or close to, at least one of said protrusions, so that nucleation occurs within said active region and wherein each said pixel is surrounded by at least one of said protrusions, so that the pixel is isolated (Fig. 10 and col. 14, paragraph 83);

wherein said nematic liquid crystal is a pi-cell or splay bend device (SBD) (col. 1, paragraphs 1-3);

wherein when said voltage is substantially zero different regions of said liquid crystal exist in first non-operating state (region B) and second non-operating state (region A or C), and the first non-operating state is stabilized by said anisotropic protrusions 8, 8' as illustrated in Fig. 9, which is a modification of the device shown in Fig. 7, wherein said first and second non-operating states are V and H states respectively and wherein said first non-operating state is the same state as said operating state (col. 12, paragraph 73).

Acosta also discloses a method of producing the liquid crystal device in Fig. 9 comprising the steps of forming a reactive mesogen layer 8, 8' on substrates 1, 1', curing said layer by irradiating said layer with UV light through a mask to leave said one of said substrates coated with anisotropic protrusions, and forming a liquid crystal cell by sandwiching nematic liquid crystal material between said two substrates (col. 14, paragraph 82).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 2-4, 11-14 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acosta et al. (EP 0996028A2) as applied to claims 1, 5-10, 15-17, 19 and 20 above in view of Bryan-Brown et al. (USPN 6,249,332 B1).

Acosta et al. discloses a liquid crystal device that is basically the same as that recited in claims 2-4, 11-14 and 18 except for a bistable twisted nematic (BTN) and tilted and twisted protrusions. Brown et al. discloses a bistable twisted nematic liquid crystal device (col. 1, lines 26-42) comprising a surface alignment grating having small protrusions of 1-3 micrometers height (col. 4, lines 1-7) for permitting liquid crystal molecules to adopt two different pretilt angles in the same azimuthal plane and assisting in correct spacing apart of the cell walls (col. 3, lines 40-46 and col. 4, lines 2-6), wherein the protrusions are tilted and twisted protrusions (col. 3, lines 47-61 and col. 9, lines 26-41). Brown et al. also discloses that the protrusions may be formed by the material of the alignment layers and the spacing between the glass walls 3, 4 in Fig. 2 is typically 1-6 micrometers (col. 4, lines 6-7 and 58-60). Accordingly, the protrusions may have a height which is at least 10 or 20% or substantially 50% of the thickness of the liquid crystal. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the liquid crystal device of Acosta et al. with the teaching of Bryan-Brown et al. by employing a BTN liquid crystal with a surface alignment grating having protrusions with an appropriate height for permitting liquid crystal molecules to create a first non-operating state as T state and different pretilt angles and assist in correct spacing apart of the cell walls.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (703) 308-

3171. The examiner can normally be reached on Monday-Friday from 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (703) 305-3492.

Thoi Duong

05/04/2003

TOAN TON
PRIMARY EXAMINER